## Development and implementation of the Rehabilitation Activities Profile for children: impact on the rehabilitation team

Roelofsen, E.E.; The, B.A.M.; Beckerman, H.; Lankhorst, G.J.; Bouter, L.M.

***published in***
Clinical Rehabilitation
2002

***DOI (link to publisher)***
10.1191/0269215502cr498oa

***document version***
Publisher's PDF, also known as Version of record

# Development and implementation of the Rehabilitation Activities Pro" le for children: impact on the rehabilitation team

Eline E Roelofsen, B Anne-Mei, Heleen Beckerman, Gustaaf J Lankhorst and Lex M Bouter

*Clin Rehabil* 2002 16: 441
DOI: 10.1191/0269215502cr498oa

*Clinical Rehabilitation* 2002; **16**: 441–453

# Development and implementation of the Rehabilitation Activities Profile for children: impact on the rehabilitation team

**Eline E Roelofsen** University Hospital Vrije Universiteit, Department of Rehabilitation Medicine, Amsterdam, Rehabilitation Centre 'De Trappenberg', Huizen and Institute for Research in Extramural Medicine, Faculty of Medicine, Vrije Universiteit, **B Anne-Mei The** Institute for Research in Extramural Medicine, Faculty of Medicine, Vrije Universiteit, Amsterdam, **Heleen Beckerman** University Hospital Vrije Universiteit, Department of Rehabilitation Medicine, Amsterdam, **Gustaaf J Lankhorst** University Hospital Vrije Universiteit, Department of Rehabilitation Medicine and Institute for Research in Extramural Medicine, Faculty of Medicine, Vrije Universiteit, Amsterdam and **Lex M Bouter** Institute for Research in Extramural Medicine, Faculty of Medicine, Vrije Universiteit, Amsterdam, The Netherlands

Received 28th October 2000; returned for revisions 4th January 2001; revised manuscript accepted 13th February 2001.

**Objective**: To describe the changes in functioning of the rehabilitation team induced by the Rehabilitation Activities Profile for children (Children's RAP), an instrument designed to improve interdisciplinary communication in paediatric rehabilitation.
**Design**: Multiple case-study design.
**Subjects**: Seven paediatric rehabilitation teams.
**Intervention**: A two-year project to develop and implement the Children's RAP.
**Data collection**: During the project, data were gathered from observations, documents and informal interviews. After the project, formal interviews were held with team members and parents, and a focus group meeting with representatives of the teams was organized.
**Data analysis**: Data were analysed by the method of analytic induction. The analysis was checked by an independent researcher. The preliminary results and conclusions were discussed in detail with participating teams.
**Results**: Development and implementation, as well as the changes induced by the project, varied between teams. Changes were observed for individual team members, for the team as a whole and for the children and their parents. However, changes for individual team members occurred relatively quickly, in comparison with the other changes. To achieve an optimal interdisciplinary team approach all changes are necessary. Therefore, we postulated four hierarchical steps in the development of an interdisciplinary team approach: (1) process-oriented approach, (2) result-oriented approach, (3) problem-oriented approach, and (4) interdisciplinary team approach.

Address for correspondence: Eline E Roelofsen, University Hospital Vrije Universiteit, Department of Rehabilitation Medicine, PO Box 7057, 1007 MB Amsterdam, The Netherlands. e-mail: reva@azvu.nl


10.1191/0269215502cr498oa

**Conclusion**: It took a considerable amount of time to achieve the interdisciplinary team approach by implementing the Children's RAP. However, the first steps are not only rewarding in themselves, but also prerequisites for further improvement.

## Introduction

In paediatric rehabilitation, professionals are faced with a diversity of problems in each child, ranging from physical impairments to psychological and educational handicaps. In order to address these problems, professionals from various disciplines work together in teams. In the often quoted article by Melvin,[1] two team approaches are described: the multidisciplinary team approach and the interdisciplinary team approach. In the multidisciplinary team, each team member is responsible for assessment and treatment of the patient individually. By contrast, in the interdisciplinary team all team members work together towards shared goals. Generally, the interdisciplinary approach is regarded as the optimal model of team activity.[1–4]

To work as an interdisciplinary team, members of the team have to interact with each other about their findings, objectives and recommendations, in order to achieve shared formulation of the problems and shared rehabilitation goals. This interaction takes place during team conferences. Consequently, good communication during team conferences is crucial for an interdisciplinary team.[2,5–7] However, communication during team conferences is often problematic.[7–10] The participation of various different disciplines results in the use of different jargons and different reference frameworks, which hinders optimal interaction between team members.[10]

To achieve an interdisciplinary team approach in paediatric rehabilitation, we developed an instrument to facilitate team communication. This instrument, the Rehabilitation Activities Profile for children (Children's RAP), consists of three sections: (1) basic information about the children and their proxies; (2) present situation of the children and their proxies, describing the needs as well as the impairments and abilities of the children and their proxies. Abilities are subdivided into six and three domains, respectively, and; (3) conclusions of the team conference, consisting of a principal problem, a principal goal and discipline-specific treatment goals (Figure 1). In the Children's RAP, the term proxies is used to indicate all proxies of the child, including parents, siblings, peers, teachers, therapists, and other persons in the environment of a child. With regard to the formulation of the rehabilitation treatment the parents are the most important proxies. Therefore, the term parents is used in the following text except when the instrument is focused on.

Development and subsequent implementation of the Children's RAP took place in seven paediatric rehabilitation teams in the Netherlands. This article describes the changes in team functioning induced by the development and implementation of the Children's RAP.

## Methods

### Design

Teams who were motivated and able to finance the development and implementation of the Children's RAP were invited to participate in the study. Seven paediatric rehabilitation teams from five rehabilitation centres participated. A multiple case-study design was followed with the teams as cases.[11,12]

### Intervention

A national study group, representing 21 of the 31 Dutch paediatric rehabilitation centres, developed a draft of the Children's RAP. This national draft was introduced in the seven experimental teams. These teams were asked to implement and further develop the national draft during a two-year project.

A project description was provided, which described the project organization and the order of sequence of the implementation and further development. In each centre, a local study group was formed, ranging from five to ten members, to develop the Children's RAP and to manage the project. After an introductory period, the

| 1: BASIC INFORMATION ABOUT CHILD AND PROXIES | 2: PRESENT SITUATION OF CHILD AND PROXIES | 3: CONCLUSIONS OF THE TEAM CONFERENCE |
|---|---|---|
| BASIC INFORMATION<br><br>personal details<br>family situation<br>educational situation of the child<br>adaptations/adapted living accommodation/aids etc. | NEEDS<br><br>child<br>proxies | PRINCIPAL PROBLEM<br><br>hindering factors<br>facilitating factors |
| | PRESENT SITUATION[a]<br><br>*CHILD*<br>impairments | PRINCIPAL GOAL |
| DIAGNOSIS<br><br>medical diagnosis<br>medical information | abilities<br>– movement abilities<br>– learning abilities<br>– communication<br>– personal care<br>– social-emotional functioning<br>– occupation<br><br>*PROXIES*<br>abilities of<br>– family<br>– adults<br>– peers | TREATMENT GOALS<br><br>*CHILD*<br>(goal/method/responsible person/term)<br>*categorized in domains of abilities*<br><br>*PROXIES*<br>(goal/method/responsible person/term)<br>*categorized in domains of abilities* |

**Figure 1** The Children's RAP (Rehabilitation Activities Profile). *Note*: The space in this framework does not determine the space that an aspect is allocated in the report. [a]This section contains nationally standardized items.

national draft, adapted to local needs by the local study group, was implemented in the teams. During further use, the instrument could be developed in more detail, and new developments could be implemented gradually. More details about the development and implementation are given in Roelofsen *et al.*[13]

## Data collection

Data were collected from five sources. During the project, data were gathered from observations, documents and informal interviews. After the project, formal interviews and a focus group meeting were organized to collect additional data.

1) Observations: The primary researcher (EER) attended the meetings concerning the development and implementation of the Children's RAP in the participating teams. Observational notes were made after each meeting.
2) Documents: All minutes of the meetings of the local study groups, newsletters, notes for the team members and local evaluative reports concerning the project were gathered.
3) Informal interviews: The researcher had regular discussions about the project with team members, local study group members, project co-ordinators and trainers. Notes of these informal interviews were made as soon as possible.
4) Formal interviews: Six months after the project ended, the researcher held formal open interviews with a total of 58 individuals (26 team members from various disciplines in each team, 15 people from the local study

groups, 5 project co-ordinators, 11 parents and 1 trainer). The interviews lasted for 30 minutes to 1 hour, and took place in the rehabilitation centre in which the respondents worked. Interviews with parents were conducted by telephone, and took 5–20 minutes. All interviews were recorded on a tape-recorder and transcribed literally.

5) Focus group meeting: One and a half years after the project ended, a focus group meeting was organized. Representatives of five teams and four of the authors of this article were present. During the meeting, the results of the analysis were checked and data on the latest developments within the teams were gathered.

### Data analysis

Information gathered during the project was categorized into situational aspects, structure, processes and product for each individual team.[14] Subsequently, information was analysed for each team separately. Then differences between the teams were analysed.[15] Comparison resulted in the formulation of hypotheses.

Based on the hypotheses from the data collection during the project, a topic list was made for the formal interviews. The first team was interviewed, and immediately afterwards the interviews were typed out and the written accounts were coded according to the topic list. During the coding procedure the topic list had to be extended to cover all the topics mentioned in the interviews. Subsequently, interviews with the first team were analysed, assessing the hypotheses and formulating new theories. Interviews with the second team were used to check these new theories. Analysis of interviews with the remaining teams followed the same procedure (method of analytic induction[16,17]). The analysis was repeated four months later by both the primary researcher (EER) and a second independent researcher (BAMT), an expert in qualitative research. The conclusions were discussed between the two researchers. The shared results and conclusions of the analysis were discussed during the focus group meeting. Subsequently, the semi-final version of the article was sent to all respondents for a last round of comments.

### Reliability and internal validity

To enhance reliability of the data, several data sources were used, neutralizing the one-sidedness of an individual source (triangulation[12,16,18]). Reliability of the formal interviews was maximized by recording on tape and by checking the written accounts and the summaries of the interviews with the respondents.[19] To minimize biases, formal interviews were held with representatives of all key disciplines among team members as well as members of the local study groups (fair dealing[18]).

With regard to the internal validity of the conclusions, the prolonged presence of the researcher in the field is expected to minimize distortion (prolonged engagement[16,20]). The researcher (EER) was supported and supervised by an expert in qualitative research (BAMT) during the analysis of the data (audit-trials[16,19,20]). Moreover, the conclusions were discussed and verified during a focus group meeting and presented to all respondents (member-check[11,20]; respondent validation[16,18]).

## Results

### Subjects

Characteristics of the seven participating teams and the team conferences are shown in Table 1. The teams vary in size, as well as in the age and diagnoses of the children treated. Both inpatient and outpatient teams participated. In the description of the results and in the discussion, the teams are numbered at random to guarantee anonymity.

### Initial situation in the teams

The Children's RAP is intended to be used during scheduled evaluative team conferences, during which the treatment of an individual child is discussed. The duration of the conference and the presence or absence of parents during these team conferences differed per team (Table 1). Before the implementation of the Children's RAP, the emphasis of the team conferences was on informing other team members and parents about the (planned) activities of each discipline. Generally, the reports made in preparation for the team conferences described the child and the

**Table 1** Characteristics of the teams at the beginning of the project

| Centre | Team | Number of team members[a] | Treatment[b] | Age of the children treated | Duration of scheduled evaluative team conference (minutes per child) |
|---|---|---|---|---|---|
| I | A | 15 | Out | 0–18 | 15 |
| II | B | 16 | Out/day | 0–18 | 30[c] |
| III | C | 15 | Out/in | 4–16 | 10/30[c,d] |
| IV | D | 25 | Out/day | 0–18 (out)<br>0–4 (day) | 30[c] |
| | E | 23 | Day | 4–18 | 30[c] |
| | F | 15 | In | 0–18 | 10 |
| V | G | 15 | Out/day | 4–18 (out)<br>4–18 (day)[e] | 30[c] |

[a]Excluding nurses and teachers.
[b]Out, outpatient treatment; day, daycare treatment in special schools (4–18 years of age) or in early intervention groups (0–4 years of age) linked to the rehabilitation centre; in, inpatient treatment.
[c]Parents are present during the team conference.
[d]Duration of the urgent team conference and the scheduled evaluative team conference, respectively.
[e]Only multiple complex disabled children.

activities during the previous period, as well as the plans for the coming period. The content of the report made after the team conference varied from minutes of the team conferences to a treatment plan, summarizing the future activities of the various disciplines. These activities were sometimes formulated in terms of goals.

> Everyone used to explain what they were doing, what materials they used and what treatment they were giving. During the meeting a round was made of all disciplines, and then the parents were asked if they agreed (team 7).

## Intervention

Although the implementation process was designed in advance of the study, the actual implementation of the Children's RAP differed between teams (Table 2). Within the two-year period of the project, the Children's RAP was implemented completely in three teams (teams 2, 4, 6). A fourth team (team 5) implemented the Children's RAP completely within three and a half years after the start of the project. The three remaining teams were still preparing complete implementation (team 1, 3, 7). Further development of the Children's RAP within the teams did not produce substantial differences between the local versions.[13]

## Changes in team functioning

Qualitative analysis revealed that the implementation of the Children's RAP induced 13 different changes in team functioning in one or more teams. The changes were ordered as follows: (1) changes for individual team members; (2) changes for the team as a whole, and (3) changes for the children and their parents.

### *1) Changes for individual team members*

a) Explicit The formulation of goals forced each team member to be explicit about the expected results of the treatment. As a consequence, the treatment was transparent not only for the team member, but also for other team members, and for the children and their parents.

> It used to be enough just to say 'stimulating general motor development'. Now you have to name the result and the steps you have to take to get this result, for instance 'child riding a tricycle in the exercise room'. You could carry on for years with stimulating the development, yet you kept wondering why you did it. Now, if you can't achieve your goal, it really can be a confrontation for the parents, and for the therapist too. It's clear at a point that as a therapist you're not having any more influence on the development (team 1).

b) Comprehensive The Children's RAP served as a checklist, which prevented team members

**Table 2** Implementation of the Children's RAP: timing of initial use of the Children's RAP as a reporting system and in team conferences (in number of months after the start of the project)

| Team | Initial use as a reporting system | | | Initial use in team conferences | | | Initial use of a questionnaire for parents |
|---|---|---|---|---|---|---|---|
| | Partial use[a] | Complete use, but only for some children | Complete use | Partial use[a] | Complete use, but only for some children | Complete use | |
| 1 | 4 | – | – | 0[b] | – | 34 | – |
| 2 | – | – | 6 | – | – | 9 | – |
| 3 | 3 | 20 | 36 | 12 | – | 27[c] | 20 |
| 4[d] | – | – | 9/17[d] | – | – | 9/27[d] | 26[e] |
| 5 | 9 | 20 | 30 | 12 | 20 | 30 | 20 |
| 6 | – | 6 | 20 | – | 6 | 20 | – |
| 7 | – | 22 | 48 | – | 22 | 48 | 22 |

[a]Use of the second part of the Children's RAP, domains of abilities of child and parents, only.
[b]This team was already using the domains of abilities to structure the team conference when the project started.
[c]By one of the physicians.
[d]For urgent problem conferences and scheduled evaluative team conferences, respectively.
[e]The existing questionnaire was adapted according to the Children's RAP.
–Not expected in the team.

from forgetting to report relevant information or from adding irrelevant information.

> Now you really have to make sure before the team conference that you know exactly how things are going, for instance with toileting (team 7).

c) Separation of information Individual team members had to distinguish between two types of information: team information and information for colleagues of the same discipline. Team information was used for team conferences, during which decisions about team treatment are taken. Therefore, team reports concentrated on the treatment goals. Information for colleagues was used to enable a colleague to take over the treatment. Therefore, disciplinary reports concentrated on the specific methods of the treatment.

> At first it seemed that no discipline-specific information was kept. Now it's been agreed that this information is recorded in the discipline-specific status. Because there's now less discipline-specific information in the Children's RAP, the reports have become easier to read for other disciplines and for parents (team 4).

d) Focus/limitation By formulating the needs of the child and his or her parents, team members were reminded to tailor their treatment to the patient's needs, thus limited to the things that are important for the child and the parents.

> I think I can leave things out more easily now. I first ask myself whether it will cause a problem. If it doesn't cause a problem, then I leave it (team 4).

e) Team membership The relationship of each individual team member towards the team as a whole was emphasized, because the contribution of all disciplines is needed to obtain a complete description of the present situation of the child and his or her proxies and all team members had to think about the principal problem and the principal goal.

> You're made to think not only about your own part, but to see the child in a much bigger framework and to ask yourself what influence your own treatment has on the child (team 4).

f) Role as a team member During team conferences, individuals from each discipline had to participate in the discussion as a team member in order to determine the team treatment.

> The team conference is now more a planning time, and less a report about the progress of the individuals disciplines (team 7).

*2) Changes for the team as a whole*

a) Team spirit Training sessions stimulated the team spirit. In addition, the Children's RAP affected all team members and emphasized the interdependence of the individual disciplines.

> I think that there's much more mutual involvement because everyone does their very best to put things down on paper in the same way. It's something we all have to sort out together, which we are all wrestling with (team 5).

b) Comparability of discipline-specific information All team members used the same structure for reports, which facilitated reading reports made by other team members. Comparability of the content of reports was enhanced by using the same language (domains and items of the Children's RAP).

> Because the goals all concentrate on the child, you can easily see whether the goals of the various disciplines are similar. So you can agree on which goals must have priority and where you can work together (team 3).

c) Client-tailored team The needs of the children and their parents were the starting point in team conferences. Further treatment provided by the team was aimed at meeting the needs of the children and their parents.

> The needs of the child and the parents are more central. That means that more attention is paid to what the child or the parents want. So more as a team and less concerned with what you want as a discipline (team 5).

d) Team treatment During team conferences, a principal problem was formulated as well as shared team goals, which enhanced and accelerated attunement between team members.

> Working this way it's easier to detect that you're all facing the same problem. I think that everyone used to concentrate on his own discipline-specific treatment and that it took much longer before you actually came to that conclusion (team 4).

*3) Changes for the child and the parents*

a) Business-like report The conciseness of the report resulted in a well-ordered, focused report. Parents perceived this as a business-like report, which was efficient, but sometimes considered to be too impersonal.

> In general, I found the reports really clear and easy to read. Because the reports have a fixed structure, the reports are easy to compare (parent).
> The report is much more business-like. That means you miss some things. After all, it is a child that we're talking about (parent).

b) Need-oriented The emphasis of the treatment shifted towards solving the problems of the child and the parents, and also towards meeting the expectations of the child and the parents.

> I think that other accents are laid on the treatment. Of course, there were some parents who were already very much involved in the treatment. But, in general, I think people are listening more to what is important for the parents (team 5).

c) Role during team conferences Parents were expected to formulate their needs prior to the team conference and to participate actively in the formulation of the principal problem and the principal goal.

> Previously, I was more a kind of listener and sat there to hear from the therapists how my child was getting on. Now I'm more of a partner in the team conferences (parent).

**Four steps in the development of an interdisciplinary team approach**

The 13 changes together illustrate important aspects of the achievement of an interdisciplinary team approach. However, in some teams not all changes were perceived (Table 3). Moreover, individual changes for team members were perceived relatively early in the project, in comparison with the changes for the team as a whole and the changes for the child and its parents. Therefore, we concluded that there is a certain hierarchy of changes involved in the implementation of the Children's RAP. The steps may be described as follows (Figure 2):

1) *Process-oriented approach*: Professionals from different disciplines select their own treatment methods and inform other team members and the parents during team conferences.
2) *Result-oriented approach*: Professionals from different disciplines set their own goals for

**Table 3** Changes in team functioning induced by the implementation of the Children's RAP per team

| Team | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1) Changes for individual team members | | | | | | | |
| a) Explicit | * | * | * | * | * | * | * |
| b) Comprehensive | * | * | * | * | * | * | ■ |
| c) Separation of information | @ | * | @[a] | * | @[a] | * | ■ |
| d) Focus/limitation | ■ | * | ■ | * | # | * | ■ |
| e) Team membership | * | * | * | * | * | * | ■ |
| f) Role as a team member | @ | * | ■ | * | # | * | ■ |
| 2) Changes for the team as a whole | | | | | | | |
| a) Team spirit | @ | * | * | * | * | * | @ |
| b) Comparability of discipline-specific information | * | * | * | * | * | * | * |
| c) Client-tailored team | ■ | * | ■ | * | # | * | ■ |
| d) Team treatment | ■ | * | # | * | # | * | ■ |
| 3) Changes for the child and its parents | | | | | | | |
| a) Business-like report | – | – | * | * | * | * | ■ |
| b) Need-oriented | ■ | * | ■ | * | # | * | ■ |
| c) Role during team conferences | – | – | # | * | # | – | ■ |

– Not applicable, parents are not present at team conferences.
* Change is achieved in the team within two and a half years after the start of the project.
# Change is achieved in the team within three and a half years after the start of the project.
■ Change is achieved partially in the team within three and a half years after the start of the project.
@ Not seen during the project.
[a]Existed before the project.

clear-cut periods and inform other team members and the parents during team conferences.

3) *Problem-oriented approach*: Professionals from different disciplines set goals, together with the children and their parents, and inform other team members during team conferences.
4) *Interdisciplinary team approach*: The whole team sets goals, together with the child and the parents during team conferences. Individual treatment is attuned to achieving the shared goals of the team.

Table 4 illustrates the hierarchy of changes corresponding to these steps.

## Development in the teams

Before the implementation of the Children's RAP, all teams functioned with a process-oriented approach (step 1). Some teams were already shifting towards a result-oriented approach (step 2), following a general tendency in rehabilitation medicine. With the introduction of the second part of the Children's RAP (the domains of abilities of the child and his or her proxies), a language was generated which facilitated formulation of measurable goals. Thus, individual team members shifted towards the result-oriented approach. Consequently, they experienced the benefit of making their treatment explicit (change 1a). Moreover, the Children's RAP training sessions stimulated the team spirit (change 2a).

When team members started to report according to the Children's RAP, they gradually shifted towards the problem-oriented approach since the structure of the report is an invitation to report goals and needs of child and parents. Thus, team members experienced the benefit of focusing treatment (change 1d, change 3b), as well some other changes (changes 1b, c, e). Moreover, changes for the team as a whole as well as for the children and their parents were perceived (change 2b, change 3a). However, the problem-oriented approach could only be achieved if team members individually changed their daily routine as well as their attitude towards the children and their parents.

When the Children's RAP was used in team conferences, the team shifted towards an interdisciplinary team approach since the structure of the report indicated the formulation of shared problems and shared goals. Achievement of the interdisciplinary team approach induced changes for individual team members (change 1f), as well as changes for the team as a whole (changes 2c, d) and changes for the children and their parents (change 3c).

However, several problems had to be solved before this approach could be achieved. First, the Children's RAP could only be used in team conferences when all team members used it appropriately for reporting. Secondly, the emphasis of the team conferences had to change from exchange of information to a concerted planning of treatment. This required additional skills from team members, parents and the chairperson. Thirdly, using the Children's RAP provoked considerable discussions within the team, especially when the following topics were raised: the confrontation of the child and his or her parents with goals, and unrealistic expectations of parents.

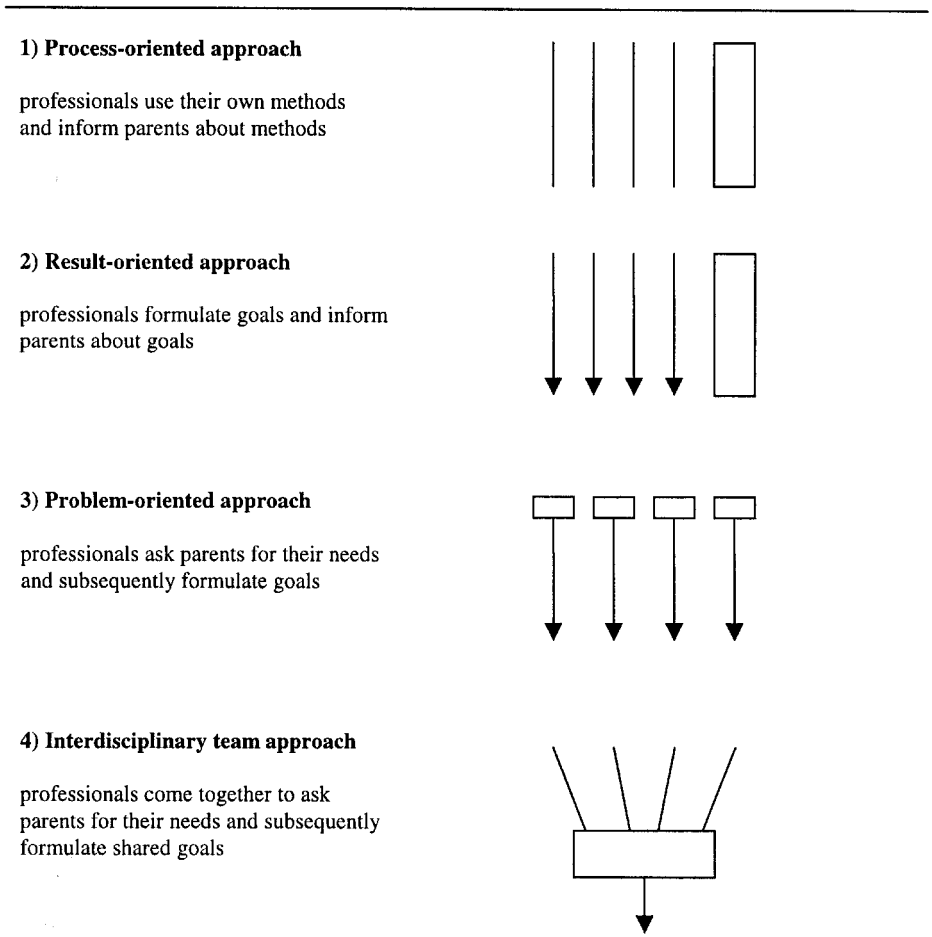


**Figure 2** Steps in the development of an interdisciplinary team approach.

**Table 4** Changes in team functioning induced by the implementation of the Children's RAP in relation to the steps in the development of an interdisciplinary team approach

| Steps | Process-oriented approach | Result-oriented approach | Problem-oriented approach | Interdisciplinary team approach |
|---|---|---|---|---|
| Changes in team functioning | | | | |
| 1) Changes for individual team members | | | | |
| a) Explicit | | X | X | X |
| b) Comprehensive | | | X | X |
| c) Separation of information | | | X | X |
| d) Focus/limitation | | | X | X |
| e) Team membership | | | X | X |
| f) Role as a team member | | | | X |
| 2) Changes for the team as a whole | | | | |
| a) Team spirit | | X | X | X |
| b) Comparability of discipline-specific information | | | X | X |
| c) Client-tailored team | | | | X |
| d) Team treatment | | | | X |
| 3) Changes for the child and its parents | | | | |
| a) Business-like report | | | X | X |
| b) Need-oriented | | | X | X |
| c) Role during team conferences | | | | X |

X This change is observed when the specific step in the development of an interdisciplinary team approach, as described in each column heading, is achieved.

Consensus had to be achieved before agreements about the use of the Children's RAP could be reached. Fourthly, lack of clarity about the roles of various disciplines within the team, and differences in the focus of treatment were important issues which had to be solved before all disciplines were willing to use the Children's RAP. Fifthly, computer facilities were often not suitable for optimal use of the Children's RAP. Finally, the procedures had to be structured in a such way that a description of actual needs was available prior to the team conference. Thus, parents had to be consulted before the team conference. Solving these problems was the reason for delay in achieving the interdisciplinary team approach.

## Discussion

### Changes in team functioning

The changes perceived as a result of the implementation of the Children's RAP are similar to those described in the literature. Goal-setting is described as a management tool which is claimed to be rational and coherent, which allows effective division of labour and which promotes evaluation to be built into the system (change 1a).[8,21–23] By attuning the treatment to the needs of the patient, treatment is limited to the things which are important for the children and their

**Clinical messages**

- In the development of an interdisciplinary team approach, four steps can be defined: 1) process-oriented approach; 2) result-oriented approach; 3) problem-oriented approach and 4) interdisciplinary team approach.
- Teams should consider carefully whether the problem-oriented approach could suffice for children with relatively simple rehabilitation problems.
- For future implementation, teams should follow the four steps to enhance the chance of successful implementation of the Children's RAP.

parents (change 1c).[8,9,24–26] The interdisciplinary team approach is described as resulting in shared treatment (change 2d) tailored to the needs of the children and their parents (changes 2c, 3b).[1–4,25]

Several prerequisites for achieving the interdisciplinary approach are mentioned in the literature. Each professional should set goals,[22] and be problem-oriented.[6,9,10,27,28] These prerequisites were met by reporting according to the Children's RAP. Furthermore, (1) team dynamics, e.g. leadership, tasks and roles of team members, hierarchy and personal relationships,[7,29] and (2) logistics, e.g. distribution of reports,[10,30] should support the interdisciplinary team approach. Imperfect team dynamics and logistics were partly responsible for the problems described in the Results section when trying to achieve the interdisciplinary team approach.

In conclusion, the Children's RAP incorporates the prerequisites concerning the contribution of individual team members by combining the following aspects: (1) discipline-specific measurable treatment goals; (2) documentation of the needs and the problems of the children and their parents, and (3) a common language. However, the prerequisites of team dynamics and logistics should also be realized to achieve an interdisciplinary approach.

### Steps in the development of an interdisciplinary team approach

Although prerequisites for an interdisciplinary team approach are described in the literature, there is no description of the implementation of an interdisciplinary team approach in a series of hierarchical steps. The achievement of an interdisciplinary team approach is often problematic,[8,10] and resistance to this approach is often evoked when professionals fear that working in a team implies losing their discipline-specific identity.[10,29]

From the present study it can be concluded that the prerequisites can be implemented in steps which reduce the chance of resistance.[31–33] During the stepwise implementation of the Children's RAP team members are trained in the skills which are required for the interdisciplinary approach, by mastering the result-oriented approach, followed by the problem-oriented approach. As changes in daily routine take place gradually, professionals have time to experience the benefits before the next step is taken. Moreover, the organization has the opportunity to ensure that the logistical prerequisites for achieving the interdisciplinary approach are met and that the team can gradually adapt team dynamics.

The motivation of individual team members to take the next step is enhanced because implementation of the Children's RAP follows a logical course. Recent tendencies in rehabilitation medicine support the result-oriented approach.[22,23,34] Through the formulation of goals the problem of priority-setting becomes apparent, because individual team members and the team as a whole can formulate many more goals then they can handle. Priority-setting by individual team members can be achieved by attunement to the patient (problem-oriented approach). However, the problem of priority-setting as a team has not yet been solved. As similarities and discrepancies between discipline-specific goals become apparent when each individual formulates goals in terms of the patient's problems, solving these problems through an interdisciplinary team approach is a logical next step.

Thus stepwise development of an interdisciplinary team approach, similar to the stepwise implementation of the Children's RAP, enhances the chance of successful implementation.

### Effects and efforts to achieve the interdisciplinary team approach

The interdisciplinary team approach is regarded as the preferred model for optimal team functioning.[1–4] However, it is not evident which aspects of the team approach are responsible for its assumed added value.[30,35–37] From the present study, it can be concluded that the result-oriented approach (step 2) and the problem-oriented approach (step 3) have clear benefits. To achieve an interdisciplinary team approach a considerable effort from professionals is necessary. Clear consequences of the interdisciplinary approach on the functioning of the children and their parents have not yet been reported, although participating teams expect that changes in treatment will soon become apparent. In general, changes

in treatment cannot be expected until three to five years after the implementation of an interdisciplinary team approach.[9] Therefore, consequences for the treatment should ideally be evaluated again after the Children's RAP has been in use for five years. Furthermore, teams should seriously consider whether an interdisciplinary team approach is worth the effort. Especially for children with relatively simple rehabilitation problems, which do not influence the further development of the child, the problem-oriented approach could suffice in certain cases.

### Development and implementation in the present study

During the present study, the Children's RAP was both developed and implemented by the teams. The combination of development and implementation has probably influenced certain aspects of the implementation. First, team members could influence the content of the instrument, which could have enhanced their motivation to use it. Secondly, the continuous presence of the researcher possibly facilitated the implementation, by supporting participants, recording minutes of meetings, and stimulating continuity of the meetings. Thirdly, the participating teams were monitored by the national study group, stimulating them to implement the Children's RAP. Finally, development could also have influenced implementation in negative way, because initially the terminology used in the Children's RAP was not defined clearly, which resulted in confusion for some team members. Moreover, development of the Children's RAP took a considerable amount of time and the width of changes induced by the Children's RAP was underestimated, making the implementation process longer than foreseen.

### External validity of the study

The Children's RAP was implemented in seven paediatric rehabilitation teams. The participating teams differed in size and in patient population, as well as in the structure, procedures and characteristics of both the team and the setting. Therefore, the Children's RAP is considered to be appropriate for use in any paediatric rehabilitation team. Moreover, the Children's RAP is also being used by some adult rehabilitation teams, after some adaptations in the second part of the instrument.

The changes in functioning of the rehabilitation team induced by the implementation of the Children's RAP are not specific for the Children's RAP, but result from the implementation of the underlying approaches. Although the participating teams are not representative for rehabilitation teams in general, we expect that implementation of the Children's RAP in other rehabilitation teams will induce the same development of team approaches and thus similar changes in team functioning.

### Acknowledgements

We wish to thank the professionals from the rehabilitation centres 'De Trappenberg' (Huizen), 'Reigerbos' (Goes), 'Rijndam Adriaanstichting' (Rotterdam), 'Groot Klimmenaal' (Arnhem) and the Department of Rehabilitation Medicine of the University Hospital Vrije Universiteit (Amsterdam) who were interviewed. In particular we are indebted to the following people (in alphabetical order): JG Becher, B Drentje, GHW van de Goor, L Kok, R Pangalila and P van Schie.

## References

1 Melvin JL. Interdisciplinary and multidisciplinary activities and the ACRM. *Arch Phys Med Rehabil* 1980; **61**: 379–80.
2 Melvin JL. Status report on interdisciplinary medical rehabilitation. *Arch Phys Med Rehabil* 1989; **70**: 273–76
3 Rothberg JS. The rehabilitation team: future direction. *Arch Phys Med Rehabil* 1981; **62**: 407–10.
4 Diller L. Fostering the interdisciplinary team, fostering research in a society in transition. *Arch Phys Med Rehabil* 1990; **71**: 275–78.
5 DeLisa JA, Martin GM, Currie DM. Rehabilitation medicine: past, present and future. In: DeLisa JA, Gans BM eds. *Rehabilitation medicine: principles and practice*. Philadelphia: Lippincott, 1993: 3–27.
6 Heruti RJ, Ohry A. The rehabilitation team: a commentary. *Arch Phys Med Rehabil* 1995; **6**: 466–68.
7 Darling LA, Ogg HL. Basic requirements for initiating an interdisciplinary process. *Phys Ther* 1984; **64**: 1684–86.
8 McGrath JR, Davis AM. Rehabilitation: where are

we going and how do we get there? *Clin Rehabil* 1992; **6**: 225–36.
9 Davis A, Davis S, Moss N *et al*. First steps towards an interdisciplinary approach in rehabilitation. *Clin Rehabil* 1992; **6**: 237–44.
10 Jelles F, Bennekom CAM van, Lankhorst GJ. The interdisciplinary team conference in rehabilitation medicine: a commentary. *Am J Phys Med Rehabil* 1995; **74**: 464–65.
11 Buuren JA van, Hutjes J, Giesbertz W eds. *Kwalitatief onderzoek: de gevalsstudie als onderzoekstrategie* [Qualitative research: the case-study as research strategy]. Heerlen: Open Universiteit, 1990.
12 Keen J, Packwood T. Qualitative research: case study evaluation. *BMJ* 1995; **311**: 444–46.
13 Roelofsen EE, Lankhorst GJ, Bouter LM. Simultaneous development and implementation of the Children's Rehabilitation Activities Profile: a communication instrument for paediatric rehabilitation. *Disabil Rehabil* 2001; **23**: 614–22.
14 Tannenbaum SI, Beard RL, Salas E. Team building and its influence on team effectiveness: an examination of conceptual and empirical developments. In: Kelley K ed. *Issues, theory, and research in industrial organizational psychology*. Amsterdam: North Holland, 1992.
15 Miles AB, Huberman AM. *Qualitative data analysis. A sourcebook of new methods*. London: Sage Publications, 1984.
16 Maso I, Smaling A. *Kwalitatief onderzoek: praktijk en theorie* [Qualitative research: practice and theory]. Amsterdam: Boom, 1998.
17 Pope C, Ziebland S, Mays N. Analysing qualitative data. *BMJ* 2000; **320**: 114–16.
18 Mays N, Pope C. Assessing quality in qualitative research. *BMJ* 2000; **320**: 50–52.
19 Mays N, Pope C. Qualitative research: rigour and qualitative research. *BMJ* 1995; **311**: 109–12.
20 Abma, TA. Drie kernproblemen van beleidsevaluatie doordacht vanuit de naturalistische benadering [Three core problems of policy evaluation from the naturalistic approach]. *Beleid & Maatschappij* 1991; **5**: 222–36.
21 Galasso D. Guidelines for developing multidisciplinary treatment plans. *Hosp Community Psychiatry* 1987; **38**: 394–97.
22 Schut HA, Stam HJ. Goals in rehabilitation teamwork. *Disabil Rehabil* 1994; **16**: 223–26.
23 Wade DT. Evidence relating to goal planning in rehabilitation. *Clin Rehabil* 1998; **12**: 273–75.
24 Kreger SM, Whealon RC. A procedure for goal setting: a method for formulating goals and treatment plans. *Rehabil Nurs* 1981; **6**: 23–26.
25 Brouwer JG. Teambehandeling in de kinderrevalidatie: een spanningsveld [Team treatment in paediatric rehabilitation: a field of tension]. In: Nakken H, Loots GMP eds. *Lichamelijk gehandicapt vanaf de geboorte: Handboek over opvoeding en hulpverlening* [Physically disabled since birth: Manual for education and care]. Assen/Maastricht: Van Gorcum, 1987.
26 Ketelaar M. Children with cerebral palsy: a functional approach to physical therapy (dissertation). Delft: Eburon, 1999.
27 Wachter M de. Interdisciplinary teamwork. *J Med Ethics* 1976; **2**: 52–57.
28 Purtilo RB. Ethical issues in teamwork: the context of rehabilitation. *Arch Phys Med Rehabil* 1988; **69**: 318–22.
29 Fordyce WE. On disciplinary peers. *Arch Phys Med Rehabil* 1981; **62**: 51–53.
30 Bakheit AMO. Effective teamwork in rehabilitation. *Int J Rehabil Res* 1996; **14**: 301–306.
31 Kluytmans F, Roffelsen JBM, Vossen H. *Sturing van verandering* [Guiding change]. Heerlen: Open Universiteit, 1991.
32 Grol RTPM, Everdingen JJE van, Casparie AF. *Invoeren van richtlijnen en veranderingen. Een handleiding voor de medische, paramedische en verpleegkundige praktijk* [Implementation of guidelines and changes. A manual for medical, paramedical and nursing practice]. Utrecht: de Tijdstroom, 1994.
33 Dekker J de. *Kwaliteit in zicht. Een praktische handleiding voor kwaliteitsverbetering in de verpleging* [Quality in view. A practical manual for quality improvement in nursing]. Utrecht: Lemma, 1995.
34 Moor J de, Didden R, Nuis M, Ven G van de. Assessing needs for interdisciplinary team training in children's rehabilitation: a pilot study. *Int J Rehabil Res* 1999; **22**: 93–100.
35 Halstead LS. Team care in chronic illness: A critical review of the literature of the past 25 years. *Arch Phys Med Rehabil* 1976; **57**: 507–11.
36 Pearson PH. The interdisciplinary team process or the professionals' tower of Babel. *Dev Med Child Neurol* 1983; **25**: 390–95.
37 Keith RA. The comprehensive treatment team in rehabilitation. *Arch Phys Med Rehabil* 1991; **72**: 269–74.